

Mind the Gap: Skills Needs for a Circular Fashion and Textiles Industry

Professor Amanda Briggs-Goode
Department of Fashion
Nottingham Trent University,
50 Shakespeare Street,
Nottingham,
UK
NG1 4FQ
E-mail: amanda.briggs-goode@ntu.ac.uk

Keywords: circular fashion and textiles, sustainable fashion and textiles, fashion and textile skills, fashion and textile industry, fashion and textile higher education

Abstract: The UK Fashion and Textiles (F&T) industry contributes to global carbon emissions, with consumption generating circa 300 000 tonnes of waste annually to landfill or incineration (WRAP, 2017). The circular economy proposes a more sustainable model with initiatives responding to legislation requiring F&T companies to meet environmental and carbon reduction targets (WRAP, 2021; BFC, 2022).

Circular F&T design is more complex than traditional linear approaches, due to environmental impacts across the whole product lifecycle requiring consideration (Ellams and Goldsworthy, 2019). Circular supply chains are more extensive and require materials innovation, improved management of waste and emissions, reverse logistics and recycling infrastructure (Niinimäki, 2015). Inevitably, skills and knowledge gaps are emerging. The NERC funded project ‘Back to Baselines’ (B2B) aims to map the UK F&T industry to provide a baseline of current practice from which to transition to sustainability within a circular framework (University of Leeds, n.d.). An essential element is to define the skills gaps across the industry and consider its alignment with educational provision.

This paper outlines the qualitative research as part of the B2B project, reflecting upon a series of focus groups comprising of F&T educators and industry specialists. The paper will discuss opinions and experiences of best practice for sustainable and circular (S&C)

F&T and explore the perceived alignments, and misalignments, of skills to inform future approaches. The UK Fashion and Textiles (F&T) industry contributes to global carbon emissions, with consumption generating circa 300 000 tonnes of waste annually to landfill or incineration (WRAP, 2017). The circular economy proposes a more sustainable model with initiatives responding to legislation requiring F&T companies to meet environmental and carbon reduction targets (WRAP, 2021; BFC, 2022).

Circular F&T design is more complex than traditional linear approaches, due to environmental impacts across the whole product lifecycle requiring consideration (Ellams and Goldsworthy, 2019). Circular supply chains are more extensive and require materials innovation, improved management of waste and emissions, reverse logistics and recycling infrastructure (Niinimäki, 2015). Inevitably, skills and knowledge gaps are emerging.

The National Environmental Research Council (NERC) funded project ‘Back to Baselines’ (B2B) aims to map the UK F&T industry to provide a baseline of current practice from which to transition to sustainability within a circular framework. An essential element is to define the skills gaps across the industry and consider its alignment with educational provision.

This paper outlines the qualitative research as part of the B2B project, reflecting upon a series of focus groups comprising of F&T industry specialists. The paper will discuss opinions and experiences of best practice for S&C F&T and explore the perceived alignments, and misalignments, of skills to inform future approaches. The global fashion and textile industry is complex, vast, and of significant economic value. This is evident when considering the transformation of raw materials into consumer products, the technologies and skillsets required throughout this journey, the logistics supporting the supply chain, the retail environments, and the consumer primed to respond to trends.

The Fashion and Textiles Industry

F&T are typically viewed as one large monolithic industry, which fails to recognise the complexity and breadth of its supply chain, the skills, knowledge and technologies required for it to function, nor the allied industries which are crucial to its operation.

The global apparel market is valued at \$1.8 trillion (Dzhengiz et al, 2023) and accounts for 1.65% of the world’s GDP, employing a global workforce of 3.62 billion people, of whom an estimated 430 million work in F&T production (UniformMarket, 2025). In 2022, 116 million of tonnes of textile fibres were produced, which has almost doubled since 2000, and the combined number of recycled fibres was 7.9% (Zammori et al, 2024, p229).

In the UK, the F&T industry contributes approximately £62 billion in gross value added and supports 1.3 million jobs (UKFT, 2023). Baurley (et al, 2025, p4) illustrates the UK’s flow of clothing, noting that total imports of clothing are 1.1 kilotonnes (kt’s), production

in the UK market accounts for 142 kt's, and production for export is 249 kt's. This results in the UK consuming just over 1 million tonnes of clothing annually.

Evolutions from traditional bi-seasonal trends has seen the F&T industry pivot since the 1980s, to be led by an acceleration of trends and products through the adoption of 'fast-fashion', leading to an 'increased volume of products with shorter life cycles, accompanied by a deflation in retail prices' (Claxton and Kent, 2020, p1). Fast fashion has resulted in retailers launching new ranges bi-weekly to maintain market share (Remy 2016), which has inevitably led to an increase in both manufacture and purchasing, in fact, between 2000 and 2014 production doubled, and consumption rose by 60%. Consequently, the prevailing business model is characterised by 'planned obsolescence', through fast trend changes and rapid production, leading to oversaturation of the market with products, of which the price points of are interpreted as disposable (Niinimäki, 2015). These issues, alongside its social impacts, ultimately contribute of the F&T industry's negative reputation in relation to the environment and ethics.

The industry's environmental footprint includes; significant energy use, water consumption and pollution, and an estimated ten per cent of all global carbon emissions in both production and end of life stages (Remy et al, 2016; Dzhengiz 2023). The disposable nature of what Dzhengiz (2023, p2) refers to as 'ultra-fast fashion' has exacerbated this impact, with the UK generating approximately 600 kt's of waste product annually (Baurley et al, 2025). Of this waste the majority is exported and/or incinerated, with only circa twenty per-cent reused in the charity sector or through resale platforms with less than one per cent recycled (Remy et al, 2016; Dzhengiz, 2023; Baurley, 2025).

These negative environmental impacts have been accelerated by a reliance on 'ultra-fast fashion', leaving the F&T industry 'locked-in to overproduction and underutilisation' (Junestrand et al, 2024, p1). Transparency and traceability across the complex geographical, economic, and environmental journey of garment production, the variations in global eco-credentials and the wider ethical and social justice issues, remains limited, for all stakeholders (Dzhengiz, 2023).

Historically, the F&T industry has relied upon a linear production model of 'take, make, waste' which has prevailed since the industrial revolution (Ellen MacArthur Foundation, 2023a). However, growing awareness of the environmental climate crisis and the impact of legislation as well as future signposting for further legal requirements has hastened the need for increased sustainable practices. Organisations such as WRAP, (Waste Resources and Action Programme) an environmental NGO, who introduced 'Textiles Pact' (previously Textiles 2030) in 2019, an initiative which brings together 130 UK brands and retailers to collaborate on climate action. The pact is intended to meet the Paris

Climate Accord, to reduce the carbon footprint by 50% and water by 30% of new textile products by 2030.

To meet these aims requires systemic change at all levels of the industry to move it from a linear to a S&C model which considers the wider environmental and ethical impact of F&T production and consumption.

Sustainable and Circular Practices in the Fashion and Textiles Industry

The transition to S&C business models requires a shift away from the linear model, to a system where the lifecycle of products is extended through increased durability, the slowing down of trends and products, which are made to be made again, from safe, recycled, or renewable inputs (Ellen McArthur Foundation, 2023). Millward-Hopkins (et al, 2023, p2) summarise the changes required:

Production-side changes might include improved energy and resource efficiency in the multiple processes between extraction and the finished garment, sourcing more sustainable fibres...reductions in pre-consumer waste...increasing reuse and recycling of second-hand clothing by increasing perceived value and durability; challenging consumer culture and the imperative for economic growth, by buying less clothing and keeping it in use for longer...

Despite recognising the need to radically alter business models through the implementation of S&C economy principles, it is reported that 63% of fashion brands are lagging behind 2030 decarbonisation goals, and only 18% of executives identify sustainability as a top growth risk for 2025 (UniformMarket, 2025). This lack of progress is also echoed through WRAP's, most recent reporting of 2022/23, noting a thirteen per-cent increase in the volume of textile products placed in the UK market, a modest progress of two per-cent reduction from the 2019 benchmark in collective carbon footprint and an eight per-cent increase in water use (WRAP, 2023).

Addressing the S&C practices which the F&T industry needs to follow is clearly acknowledged and there are several strategies, goals, and measures that businesses can use to support their transition. In addition, there are also numerous approaches to innovating and investing in new novel practices, whether that is through design strategies to increase garment durability or developing new materials which have less impact upon the natural world. Many of these strategies are promoted by WRAP and the Ellen McArthur Foundation amongst others, it's the business implementation and skill enhancements which requires further consideration.

Methodology

The UKRI Network+ funded ‘Back to Baselines’ project, led by Professor Stephen Russell at Leeds University, involves several universities, WRAP, and UKFT. Its goal is to establish scientifically validated environmental baselines for the F&T sector, supporting assessment of innovations and sustainable development.

Within this framework, Thematic Area 4 (Skills), co-led by Briggs-Goode and Adam Mansell, CEO of UKFT, focuses on identifying skill needs and gaps, aligning education with industry, and piloting training approaches. The work spans professional, educational, and consumer domains.

To gather industry perspectives we collaborated with Thematic Area 5 (Business Behaviours) to optimise engagement. Using Purposive Sampling (Bisht, 2024) for data collection from 30+ semi-structured interviews and focus groups with stakeholders from manufacturing, retail, recycling, NGOs, repair services, and policy makers. Participants were sampled to capture expertise across the supply chain and supplemented with Snowball Sampling (Parker et al, 2019) to access hard-to-reach roles and business types. Roles represented included designers, technologists, managers, directors, and start-up founders from SMEs, multinationals, and heritage firms. Interviews, conducted online and in-person, followed a semi-structured format, probing sustainability goals, circular economy practices, training, and workforce needs. Transcripts were coded inductively using Braun and Clarke’s (2017) six-phase thematic framework, with NVivo software assisting data organisation. Themes were mapped against TA4 objectives to identify convergences and divergences in thinking. Ethical approval was granted by NTU’s Ethics Committee. All participants gave informed consent, and data was anonymised and stored securely under GDPR compliance.

Current Skills Challenges in the Fashion and Textiles in the UK

The literature on skills is complex and inconsistent, Gallagher (et al 2022, p6) highlights there is a vital need for a clear skills taxonomy in the UK to provide ‘consistent conceptualization of workforce skills, together with consistent terminology and language around skills used by educators, careers advisors, policy makers and employers’. In 2023, The Department for Education (DofE) identified their plans to develop a skills strategy, noting it as a pressing challenge in defining and promoting skills and ‘implementing the net-zero transition’ (Elias et al, 2023). In their scoping paper they outline a skills typology – core, technical, behavioural, cross functional and specialist:

Table 1 – Skills typologies in common usage (Source: Elais et al, 2023, p.19) Licensed under the Open Government Licence v3.0.

Type	Description	Names given to typologies
Core Skills	Fundamental capabilities essential for performing basic tasks and functions across wide range of jobs.	Basic Meta Life Essential Generic Employability Functional
Technical Skills	Capabilities required to perform practical or cognitive tasks, often related to science, engineering, IT, construction, and production.	Hard Practical Vocational Cognitive Metacognitive Physical
Behavioural Skills	Interpersonal and self-management capabilities that influence how individuals interact and work with others.	Soft People Relational Social Personal
Cross-Functional Skills	Capabilities applicable across different jobs, enabling collaboration and adaptability.	Transversal Cross-Sector Transferrable Crosscutting
Specialist Skills	Expertise and competence in a narrow, specific area or field.	Occupation-Specific

Presently there are a number of descriptors which articulate skills for the F&T sectors across employment, training and education. The National Occupational Standards (NOS) define skills as:

Skills: These may include the technical skills specific to the function described and/or employability skills transferable to a wide range of contexts. Examples of skills include: "analysing", "listening", "time management".

There are 103 NOS role descriptors which are approved by UKFT and relate to all stages of the F&T production cycle, they are utilised for developing skills and knowledge which connect into vocational qualifications, work based training and job descriptions.

The introduction of a new post-16, level three, qualification, T level (Technical), includes the category Craft and Design. This two-year course has been designed with employers to ensure its relevance to industry, and provides:

- Technical knowledge and skills specific to their chosen industry or occupation which are defined as – technical skills, creative skills, employability skills as well as industry knowledge, research and project management knowledge

- An industry placement of at least 45 days in their chosen industry or occupation

In higher education, art and design skills are defined by the UK's Quality Assurance Agency Subject Benchmarks (QAA, 2019), who articulate that undergraduate education in aims to:

facilitate acquisition of appropriate knowledge and understanding, development of the necessary personal attributes, and application of the skills which equip and prepare students for continuing personal development and professional practice...and has acquired relevant technical knowledge and practical skills (2019, p9).

These skills frameworks are fragmented, lack coherence and consistency.

The DofE (2025a, p12) reported on skills shortages, identifying manufacturing as the third highest industry for 'skills-shortage vacancy density' at 42%. The F&T sector faces acute shortages in technical and specialist roles due to: an aging workforce, off-shoring in the 1980s, weak education-industry alignment, undervalued pay, reduced school craft curricula, Brexit, immigration policy, and Covid-19. These issues have disrupted skills pipelines (Alliance, 2017; Motif, 2020; UKFT, 2023; Make UK, 2025). The DofE (2025b, p4) report skills shortages in higher skilled, Professional and Managerial roles in the creative industries, related to soft skills, technical, IT specific, as well as green technologies. Arguing the creative industries relies heavily upon graduates and therefore overemphasises 'entry-level' roles and therefore practical rather than transferable skills, which impacts at mid and senior levels.

UKFT (2023) note that eight per-cent of the 'creating and making' workforce is over 65 years of age, often holding specialist knowledge that is at risk of being lost. As the UK F&T industry is comprised of businesses of different shapes and sizes and includes circa 11,000 SME's (Office for National Statistics, 2023), it could be assumed that the distribution of employees in this age band is spread thinly across them, and that they hold specialist knowledge, across diverse practices. The precarity of how long they might remain working creates business insecurity (UKFT, 2023; Postlewaite, 2022) and to compound this further there is a challenge in persuading young people into the industry (Harris, 2021).

The F&T industry is rendered invisible due to, in part, the lack of large employers, particularly in regions who have previously had a strong manufacturing heritage. The many SME's and micro businesses, that now dominate the sector, lack the 'perception' of solidity. Therefore, limiting the enthusiasm from young people (and their parents), in entering this workforce (Postlethwaite et al, 2022; Hills, 2023). Further compounded by reductions in the making and craft curricula at primary and secondary school state

education. Which is in part due to an emphasis on STEM (Science, Technology, Engineering and Mathematics) (UKFT, 2023; Alliance, 2017), and limited career guidance, due to lack of awareness of the roles and opportunities (DofE, 2025b).

The misalignment of education and industry need, it is argued by UKFT (2025), is further compounded by the F&T industry reliance on workers with specialist skills, but they are undervalued and poorly remunerated. In contrast HE has seen large numbers of students enter to study predominantly Fashion - Design and Promotion courses at the expense of technical education. T levels, have not seamlessly integrated into the creative industries as the predominance of micro and SME businesses have meant they have found it difficult to respond to the demand to 'schedule and coordinate the required 45 day industry placements' (DofE, 2025b, p6).

Apprenticeships have been implemented and supported by Government strategy, although the employer 'levy' has privileged large businesses, not recognising that micro and SME's businesses, have struggled to access the financial support and deal with the administrative burden (DofE, 2025). In addition, the personal ethics and values of Generation Z and Millennials, who are concerned about negative sustainable and ethical practices (Stewart, 2024; Tonti, 2024), despite their enthusiastic participation as consumers of 'ultra-fast fashion'.

These systemic barriers compound the long-standing perceptions that UK manufacturing lacks stability, making recruitment into skilled technical roles and innovating more challenging (Harris et al, 2021; Postlewaite et al, 2022).

Sustainable and Circular Fashion and Textile Skills

The literature makes generalised observations regarding the gap in 'technical skills and knowledge' required to maintain the prevailing linear model. However, driven heavily by eco-credentials, is the need to develop S&C practices and make systemic changes across the supply chain and begin to impact on the skills gap.

Ettehead (et al, 2024, p101) argues that to develop circular practices requires funding and support and encouragement from a broad network of actors - stakeholders, funders and their consumers:

...to invest in the required infrastructure to reach circularity or not use recycled/reused materials because of the low price of virgin materials...A lack of interest from stakeholders and customers...affects companies attitudes and approaches regarding applying the materials, processes and machines to achieve circularity.

In transitioning to a circular model, some businesses have made positive steps, but ‘rather than transform the industry, efforts to push change have thus far led to optimization of the status quo’ alongside pockets of high resistance to change (Buchel et al, 2022, p241). This may be due to a lack of clarity of the concept of circularity, which affects a cohesive understanding of what skills are required to deliver it.

A number of explanations are proposed to explain the challenges: that the case for S&C has not been strongly enough made for industry to be aware of ‘its relevant benefits, and guidelines for its implementation’ (Ettehad et al, 2024, p97). That circular F&T is more complex than traditional linear approaches, as environmental impacts affect every product lifecycle stage, including end of life and disassembly, and that this is a barrier (Ellams and Goldsworthy, 2019). Or, that ‘SMEs and textile companies encounter difficulties in accessing the necessary and proper technology, relevant skills, data, infrastructure and innovation to implement circular production systems.’ (Ettehad et al, 2024, p101). The lack of agreement regarding circularity, what skills are needed, what level of change is required and what the benefits could be, in the context of an already fragile industry, creates indecision, lack of investment and widening skills gaps. Circle Economy (2020, p10) argue that, ‘There is a lack of political leadership and corresponding frameworks that support circular talent development’.

Findings

It is within this context that the B2B project sought to engage with F&T businesses to understand their approach to the skills landscape regarding S&C. This section will reflect upon the wider cohort of 30+ participants, and draw detailed observations from three interviews, with three different business types and roles. Participant 1 (P1) is a Technical Director with a manufacturer and brand situated in an SME, participant 2 (P2) is a CEO of a micro, niche, business to business, start-up focused on recycling and repurposing products and participant 3 (P3) is the Head of Materials and Sustainability in a large multi-national retailer with its head office in the UK. Several themes emerged with regards skills gaps, this paper will focus on three.

Skills Gap – Technical/Specialist

Many of the businesses involved in the research reflected on the wider infrastructure: of S&C frameworks provided by NGO’s, such as, the UN SDGs, WRAP, Ellen McArthur Foundation. These resources provided entry points for discussions and initiating training, P3 outlined that these frameworks were useful tools to develop dialogue and influence change across product focused teams, leading to more depth training as relevant to roles. And added that bringing in external providers to develop circular design thinking and has

made this feel significant to employees. They have now developed their own ‘inhouse design guide’ which all design and buying teams are required to utilise.

There were also multiple and detailed references to eco-credentials, voluntary and regulatory, of which there are at least 107 (out of 427) which are relevant to the F&T industry, (Kesidou 2024). Participants expressed frustration at the delay in introducing Extended Producer Responsibility (EPR) which many feel will clarify compliance demands, which in turn will influence skills needs. The fluid conversations related to eco-credentials, demonstrates Kesidou’s (2025, p3) position that ‘Eco-credentials are no longer just a compliance issue but a strategic imperative for international firms’. Technical Director, P1, articulated how they are used to address their priorities in reducing (carbon footprint, water and chemicals), re-use (waste, repair and durability) as well as ethical sourcing (traceability and provenance) and fluently described their measuring of this data and its impact on the business.

Participants 1&2 articulated that collecting data, and interpreting and communicating it is a vital skill within numerous business functions and that this need has been growing and will continue to do so. They also noted that this is a cross-functional skill to enable fluid and informed communication and collaboration. Recruiting to this skill set is challenging, as employees, not only need understanding of the eco-credential data, but also what you are measuring, interpreting and communicating, so that improvements can be initiated , or enabling challenge to suppliers to ensure accuracy and transparency:

There's a system...it maps out the process, chemicals you use, everything on every garment and gives you a score, and that score is based around energy consumption, work health, it's around chemical consumption...At the beginning I was like, great, we've got a system, it comes out, gives you a score, you've got a red, amber, green...But what we see [from other companies] is a lot of the data is manually input, so the factories were like, 'oh okay, we'll just take that off because it's going to give you a red score'. So unless you're a truly transparent and honest factory, it doesn't truly work... (P2)

This skill set is a vital requirement to be able to navigate the growing field of eco-credentials which demands that you understand the technical data but alongside specialist skills which enables you to address how to improve the system.

Skills Gap - Behavioural and Cross Functional

Reflections upon who delivers S&C revealed various business structures for strategic, managerial and operational work, and where S&C was situated within the organisation enabled interpretation of whether it was considered a compliance or value led issue:

So we [S&C] actually sit within the sourcing function, so often in other companies, sustainability will sit...in the bank team [finance] or someone else is saying they sit in like the legal team. We sit within the sourcing, technology and development function of the business. So that means that anything, that is sourced, they have to follow all the sustainability rules because it's the same Director. (P3)

One point of convergence across all interviews was that the 'C-Suite' being 'bought into' S&C strategies was vital to them being embedded into business goals and invested in. Where this was demonstrated it made a clear positive impact upon collaborative working around 'shared' and 'meaningful' goals:

So because [S&C] is kind of embedded, lots of people are really interested and lots of people want to kind of work on it together, so it does make it quite an interesting place to be from that angle. (P3)

Others, who articulated that 'lip service' was paid by the 'C-Suite' were less positive and while 'champions' in the business could be identified, without executive support their impact was minimised. P2 in reflecting on her career with retailers and manufacturers prior to establishing her business states:

The knowledge has to be across, throughout the business...[S&C] needs to be at the top...Yeah. I think there isn't enough knowledge at the top. There's goodwill...and there's people who generally...want sustainability, [but] unless they understand it and understand where the pinch points are going to be, and where those financial decisions need to be looked at [it can't progress] (p2)

And Participant 3 notes:

lots of people have really struggled to even get their CEOs or you know that group to allow them to try a pilot of things. And I think there's a lot of skills needed to talk to the C-Suite about why this could matter, why it's about doing the right thing or why you could actually you know, potentially make money (P3)

Being able to be persistent and persuasive to influence investment and priorities came through as a skill of importance:

I am given a budget, but we have to fight for the budget like, you know, sales will fight for the budget, everybody will fight for their budget. So it's how compelling we can be. (P1)

The importance of S&C to organisational strategy influenced investment in training and examples of where the business priority was not clearly asserted:

They did a week of circularity training in XXX, and it wasn't compulsory... And all these people had signed up [but did not attend], it should have been a compulsory learning in the business, and it was voluntary...everybody's too busy. What are you too busy doing? Chasing your margin, shouting at your suppliers, telling the factory you need more money off, without understanding where you can save money, and how you can save money, because you understand the product. (P2)

However, P1 reflected on the fact that in a daily meeting with operational staff it includes an item regarding S&C, reflecting the businesses commitment to communicating and involving staff at all levels in this issue.

P2 and P3 suggest that communication and softer behavioural skills about S&C are vital to influence colleagues at all levels, including the C-Suite to enhance cross-functional teamworking. P2 points out that having knowledgeable and influential people able to explain accurately the business approach to S&C then businesses can avoid both 'green washing' and 'green hushing'.

Skills Gap - Specialist

Industry skills gaps for both linear and circular models were acknowledged as being technical and specialist, particularly around fibres, yarns, dyeing and garment construction. P1 and P2 articulate that the lack of knowledge and specialism across designers, buyers and product developers results in poor choices across the supply chain, of fabric and finishing methods for example. In reflecting on a recent conversation with a Bangladesh factory who supplies into the UK, P2 outlines:

It's just in the culture in the UK. And you go to the factories overseas...they're like the 'British buyers are the worst because they move people around...[a] retailer was in here. They just hired a new [product type] designer. She's never done [product type]. She sat in here the other day, all this technology, going, 'this is amazing. I never knew that's how you finish [product type]'. And she is designing for a multi-million pound brand.' Specialism has to come back. So when I started my career, I got to go to...factories because they were here. But they don't send people, it's no budget, so they don't build up their skill...even a lot of the senior buyers in the big companies I've worked with can come out to Bangladesh with me. They'll go sit in the showroom. And I think people are too embarrassed. So an assistant buyer won't get the travel budget to go to Bangladesh until she's senior. And then she's too scared to ask how it works.

And P1 and P2 also refer to further STEM related subjects such as Engineering – electrical and chemical to support innovations and maintenance:

Some of the other skills that I'm really going to be desperate for is engineering skills. Engineering skills are by far in short, demand in textile industry. (P1)

...it's not just the fashion students... we want the science students, we want the chemists...wash technicians...we want those kids who understand molecules and enzymes and reactions...there's this science-made fashion job that is just missing. (P2)

P2 comments on there being few technical candidates which align ethically with their business aspirations:

... we're just going to put a job out now as a 'sustainable production technician'. And we're using the word sustainable on a lot of our adverts on purpose, Just to see, because we want to capture somebody who cares... we're a sustainable business. So we want a technician who's going to come in, and not just go with the price, working, temperature, that you want to be involved in our business and take responsibility for working with us (P2)

In relation to design skills P1 and P3 identify an increased need for designers to have enhanced circularity skills with particular focus on end of life, to increase durability and ease disassembly. In reflecting on working with design teams at different stages of their career P3 outlined areas of resistance:

[senior designers] may be a bit more set in their ways, used to working and thinking in a certain way, and yes, they're very keen on kind of recycled fibres and thinking about the fabrics, thinking in a bigger picture circular way was a bit more kind of unusual for them (P3)

While P1 comments that the balance of designer's skills needs to reformat:

I think the design skills that are absolutely vital. But no longer, just in a design creativity manner, it's a technical competency manner and also what we're trying to get them to do, is we also get them to try and do accountancy [data] as well.

The three participants all had active training initiatives, P1 commented on designers receiving ethical sourcing and transparency training and a new, non F&T graduate, joining the business rotating through 35 hand skill roles, being introduced to the UN SDG's as well as enrolling for professional external training. P2 trains all staff, determined not to silo S&C, and so inducts everyone in all processes and metrics across the business and insists that everyone owns this objective. P3 in addition to the in-house

manual has a Sustainability Academy offered to all new starters and suppliers which enhances and aligns thinking.

Summary

Reflections on skills gaps in this paper highlights the systemic challenges facing the UK F&T industry in its transition toward S&C practices. While there is widespread recognition of the environmental and ethical imperatives driving change, the industry remains constrained by damaging models of production and consumption, inconsistent implementation of S&C strategies, a lack of cohesive leadership across business and policy domains and a low investment in skills and innovations. The research highlights that technical and specialist skills—particularly in areas such as fibres, fabrics, dyeing, finishing and garment construction, engineering and eco-credential data management—are in critical shortage. These gaps are exacerbated by the legacy of offshoring, an aging workforce, undervaluing of technical roles, lack of interest from young people in manufacturing and misalignment of educational courses.

Participants consistently pointed to the need for enhanced data literacy and cross-functional communication skills to navigate the growing complexity of S&C metrics and regulatory compliance. The ability to interpret and act upon eco-credential data is no longer a niche requirement but a strategic necessity, especially as businesses prepare for anticipated legislation such as Extended Producer Responsibility (EPR).

Behavioural and cross-functional skills emerged as key to progress. The positioning of S&C within organisational structures—whether embedded in sourcing, or legal departments—significantly influences its perceived value and operational impact. Where S&C is integrated into core business functions and championed by the C-suite, participants provided evidence of shared goals, collaborative working, strategic investment, and meaningful training initiatives. Conversely, where sustainability is treated as a peripheral or compliance only concern, efforts are often undermined by lack of engagement and resource allocation. The ability to advocate for sustainability internally, to influence decision-makers, and to foster a culture of shared responsibility is therefore a key competency for future workforce development.

Specialist knowledge, particularly in design and engineering, is also essential to support S&C. The research reveals a disconnect between design education and industry needs, with designers often lacking the technical understanding required to make informed choices about materials, construction methods, durability and end-of-life strategies.

Designers being a major part of the S&C solution was commented on many times, but in a review of 60 job advertisements for F&T design roles, which found that only two asked for S&C knowledge or skills, frustratingly this points to design practitioners having low involvement in finding solutions (Claxton et al, 2025).

The absence of factory-based learning and limited exposure to production environments further compounds this issue for both students and entry level roles. Participants stressed the importance of specialism and developing depth of knowledge and skills in buying, sourcing and design roles.

Training and development initiatives within participating businesses demonstrate promising models for embedding S&C principles. From in-house sustainability academies and design guides to rotational training across all business functions including hand-skill roles, which reflect a commitment to holistic learning and shared accountability. However, the scalability of such initiatives remains uncertain, particularly for SMEs and micro-businesses that dominate the sector and for whom financial constraints, administrative burdens, and limited access to government support continue to hinder their capacity to support and utilise T levels and Apprenticeship models. P1 was in particular scathing about the lack of external and governmental support to enable businesses to invest in innovative new technologies which would enhance the environmental impact of their business.

Ultimately, the transition to a S&C F&T industry requires systemic change across education, policy, and business practice. A coherent and unified approach to skills, aligned with industry needs and supported by robust infrastructure, is essential to ensure a thriving industry. As P3 states we have to do the right thing and find a way to make it work for businesses:

And so most of it is about doing the right thing and it's about having, you know, having an option for our customers and making sure that the end of life [of garments is built in]...But it's also about making sure that those models we do have, you know, economic opportunities as well, because I think it's really hard for businesses to not do that. And at the end of the day, you're a business. You've got to try and make the new business models also work. (P3)

References

Alliance, 2017. *Realising the growth potential of UK Fashion and Textile Manufacturing*, National Textiles Growth Programme

Baurley, S. (ed) et al, (2025) *Textiles Circularity*, UKRI Interdisciplinary Textiles Circularity Centre, London

Bisht, R. (2024) *What is Purposive Sampling? Methods, Techniques and Examples*, *Researcher Life*, Available at: <https://researcher.life/blog/article/what-is-purposive-sampling-methods-techniques-and-examples/> [Accessed 4 February 2025]

BFC (2022) *BFC Annual Report 2021/2022*. British Fashion Council. Available at: https://www.britishfashioncouncil.co.uk/uploads/files/1/FA%201%2020220922_BFC%20AR%202022.pdf [Accessed 25 February 2025]

Brown, H. (2018) *How UKFT is minding the skills gap?*, *Drapers*, 14 November

Buchel, S., Hebink, A., Lavanga, M. & Loorbach, D. (2022) ‘*Disrupting the status quo: a sustainability transitions analysis of the fashion system*’. *Sustainability: Science, Practice and Policy*, Taylor and Francis., 18:1 231-246

Circle Economy. (2020). *Jobs & Skills in the Circular Economy: State of Play and Future Pathways*. Circular Jobs Initiative. Available at: <https://www.circle-economy.com/resources/jobs-skills-in-the-circular-economy-state-of-play-and-future-pathways> [Accessed 28 Aug. 2025]

Clarke, V. & Braun, V. (2017) ‘*Thematic analysis*’, *The Journal of Positive Psychology*, 12:3, 297-298, DOI: 10.1080/17439760.2016.1262613

Claxton, S. & Kent, A. (2020). ‘*Fashioning Sustainability: The Role of Fast Fashion in Environmental Impact*’. *Journal of Fashion Marketing and Management*, 24:1, 1-15.

Claxton, S. & Briggs-Goode, A., (2025) ‘Establishing a Skills Baseline for Sustainable and Circular Fashion and Textiles Design in UK Higher Education’, *Forming Futures IFFTI conference* 25-28 March 2025 (conference proceedings not yet published)

Department of Education. (2025a) *Skills England: Sector Evidence on the growth and skills offer*. July. Available at: https://assets.publishing.service.gov.uk/media/6863f18b3464d9c0ad609ddf/Skills_England_-_sector_evidence_on_the_growth_and_skills_offer.pdf [Accessed 1 August 2025]

Department of Education. (2025b) *Skills England: Sector skills needs assessments creative industries*. July. Available at: https://assets.publishing.service.gov.uk/media/6863f1e5b466cce1bb121aed/Skills_England_-_sector_skills_needs_assessments_creative_industries.pdf

[nd - sector skills needs assessments - creative industries.pdf](#) [Accessed 1 August 2025]

Dzhengiz, T., Haukkala, T. & Sahimaa, O. (2023) ‘(Un)Sustainable transitions towards fast and ultra-fast fashion’. *Fashion and Textiles*. 10:19. 1-33. Available at: <https://doi.org/10.1186/s40691-023-00337-9>

Elias, P., Dickerson, A. & Bachelor, N. (2023) *A Skills Classification for the UK: Plans for development and maintenance*. Department of Education. October. Available at: https://assets.publishing.service.gov.uk/media/652fdb9d92895c0010dcb9a5/A_skills_classification_for_the_UK.pdf [Accessed 1 August 2025]

Ellams, D. & Goldsworthy, K. (2019) ‘Circular Design Futures’, *The Design Journal*. 20:4. 421-434.

Ellen MacArthur Foundation. (2023a) *What is the Linear Economy?*, Available at: <https://www.ellenmacarthurfoundation.org/what-is-the-linear-economy> [Accessed 5 August 2025]

Ellen MacArthur Foundation. (2023b) *Our vision of a circular economy for fashion*, Available at: <https://www.ellenmacarthurfoundation.org/our-vision-of-a-circular-economy-for-fashion> [Accessed 7 August 2025]

Ettehad, M., Backstrand, J., Johansen, K. & Lofving, M. (2024) Challenges and Enablers for Textile SMEs Towards Circular Production Systems, *Advances in Production Management Systems*, Thruer, M., Riedel, R., von Cieminski, G., Romero, D., (eds) 43rd WG 5.7, International Conference, APMS 2024, Chemnitz, September 8-12

Gallagher, E., Kerle, I., Sleeman, C. & Richardson, G. (2022) *Building a skills taxonomy for the UK*, Economic Statistics Centre of Excellence, Technical Report TR-16 iSSN 2515-4664

Harris, J., Begum, L. & Vecchi, A. (2021) *Business of Fashion, Textiles & Technology: Mapping the UK Fashion, Textiles and Technology Ecosystem*, University of the Arts London

Hills, K. (2023) *The Challenges Facing UK Fashion and Textile Manufacturers in 2023*, Make it British. Available at: <https://makeitbritish.co.uk/opinion/challenges-facing-uk-fashion-and-textile-manufacturers/> [Accessed 11 August 2025]

Junestrand, L. & Alexander, B. & Sheldon, F. (2023). Towards Transformative Sustainable Fashion Education: The Fashion Business School’s Approach. *Fashion for the Common Good Proceedings, Global Fashion Conference* November 16-18th 2023. DOI 10.1007/978-3-031-50252-1_12.

- Kesidou, E., Palm, C. 2024. Eco-Credentials in the Fashion and Textile Industry: Assessment and Evaluation: A Review of Eco-Credentials, their Strengths and Weaknesses, and Recommendations for Improvement. A Research Report by University of Leeds Business School for the Back to Baselines in Circular Fashion & Textiles. DOI: 10.5281/zenodo.14261051 Version: 2024-12
- Kesidou, E., Palm, C. 2025. Challenges of New Regulations and Strengths of EcoCredential Standards in the UK's Textile and Fashion Industry. A Research Report by University of Leeds Business School for the Back to Baselines in Circular Fashion & Textiles. DOI: 10.48785/100/330 Version: 2025-05
- MakeUK. (2025) *Skills for Success: The Reforms Essential to our Economic Future*, London
- Millward-Hopkins, J., Purnell, P. & Baurley, S. (2023) 'Scenarios for reducing the environmental impacts of the UK clothing economy'. *Journal of Cleaner Production*. 420. 1-12. <https://doi.org/10.1016/j.jclepro.2023.138352>
- Motif. (2020) *The State of Skills in the Apparel Industry*. Available at: https://textil-mode.de/de/documents/1382/MOTIF_State_of_Skills_2020_Report_f.pdf [Accessed 1 August 2025]
- Niinimäki, K. (2015) 'Ethical foundations in sustainable fashion', *Textile and Clothing Sustainability*, 1:3. 1-11. DOI 10.1186/s40689-015-0002-1
- NOS. (2011) *National Occupational Standards Quality Criteria with Explanatory Notes. UK Commission for Employment and Skills and the Alliance of Sector Skills Councils*. Available at: <https://assets.publishing.service.gov.uk/media/5a7e32d740f0b62302689cd1/nos-quality-criteria-2011.pdf> [Accessed 1 August 2025]
- Office for National Statistics. (2023) Fashion industry small and medium enterprises (SME). Available at: <https://www.ons.gov.uk/businessindustryandtrade/business/activitysizeandlocation/adhocs/008125fashionindustrysmallandmediumenterprisessme> [Accessed 12 August 2025]
- Parker, C., Scott, S. & Geddes, A. (2019) *Snowball Sampling, Research Methods*, Sage Publications
- Posthlewaite, S., Hooper, L., Lack, M. & Carney, L. (2022) *UK Textiles Manufacturing: Opportunities and challenges for the UK and Midlands*, MTC, Loughborough
- Remy, N., Speelman, E. & Swartz, S. (2016). 'Style that's Sustainable: A New Fast-Fashion Formula'. McKinsey & Company. Available at:

<https://www.mckinsey.com/business-functions/sustainability/our-insights/style-thats-sustainable-a-new-fast-fashion-formula> [Accessed 6 August 2025]

Stewart, H. (2024) '*She agreed to work for £5 an hour*': the desperate plight of many Leicester garment workers. The Guardian. 14 Jan. Available at: <https://www.theguardian.com/business/2024/jan/14/she-agreed-to-work-for-5-an-hour-the-desperate-plight-of-many-leicester-garment-workers> [Accessed 11 August 2025]

Tonti, L. (2024) '*It's the industry's dirty secret*': why fashion's oversupply problem is an environmental disaster. The Guardian. 18 Jan. Available at: <https://www.theguardian.com/fashion/2024/jan/18/its-the-industrys-dirty-secret-why-fashions-oversupply-problem-is-an-environmental-disaster> [Accessed 11 August 2025]

The_Elephant_in_my_Wardrobe, (2025) Instagram social media post from 29.8.25 [Accessed 7 August 2025]

QAA. (2019) Subject Benchmark Statement Art and Design. Available at: https://www.qaa.ac.uk/docs/qaa/subject-benchmark-statements/sbs-art-and-design-17.pdf?sfvrsn=71eef781_16 [Accessed: 13 August 2025]

UKFT. (2023) *Impact of Brexit and Covid 19 on the UK Fashion and Technology Ecosystem*, Available at: https://unbxd.ams3.digitaloceanspaces.com/ukft.org/wp-content/uploads/2023/07/04185051/DIGITAL_Impact-of-Brexit-and-COVID-19-on-the-UK-FTT-Ecosystem_BFTT-and-FFF76.pdf [Accessed 12 August 2025]

UKFT. (2025) *Why the Further Education system is failing the UK fashion and textile industry – and what needs to change*, Available at: <https://ukft.org/fe-what-needs-to-change/> [Accessed 11 August 2025]

UniformMarket. (2025) *Global Apparel Industry Statistics: Market Size and Trends (2025)*. Available at: <https://www.uniformmarket.com/statistics/global-apparel-industry-statistics> [Accessed 10 April 2024]

WRAP. (2017) '*Textile Waste Statistics*'. *Waste and Resources Action Programme*. Available at: <https://wrap.org.uk/resources/report/textile-waste-statistics> [Accessed 6 August 2025]

WRAP. (2021) *Textiles 2030: Six month Progress Report*. Available at: <https://www.wrap.ngo/sites/default/files/2021-10/Textiles%202030%20progress%20report.pdf> [Accessed 24 February 2025]

WRAP. (2023) *Textiles 2030 Annual Progress Report 2022/23*. Available at:
<https://www.wrap.ngo/sites/default/files/2023-11/textiles-2030-annual-progress-report-2022-23.pdf> [Accessed 1 August 2025]

Zammori, F., Romagnoli, G. & Mercogliano, N. (2024) Addressing Supply Chain's Circularity Through Simulation: Textiles Waste Separate Collection Models, *Advances in Production Management Systems*, Thruer, M., Riedel, R., von Cieminski, G. & Romero, D. (eds) 43rd WG 5.7, International Conference, APMS 2024, Chemnitz, September 8-12